National Park Service photographs

Fossilized for Eternity

Recently, Denali National Park and Preserve confirmed something that many have known for a long time: there are some fossils at Denali and at least one of those fossils is named after a park geologist.

In July of 1996, Phil Brease, park geologist, and Pam Sousanes, park physical science technician, accompanied paleontologist Robert B. Blodgett from Oregon State University on a site investigation at Shellabarger Pass. During four rainy days, they chipped an exposed section of limestone to examine and collect marine fossils that were up to 400 million years old. Numerous species of bivalves, gastropods, trilobites and brachiopods were uncovered in the effort, including a few specimens that may never have been identified before.

***Myriospirifer breasei* lived in shallow platform ocean environments.**

National Park Service photograph

In a recent article in the *Journal of the Czech Geological Society* (Volume 46, Number 3-4, Frýda, Blodgett and Megl, 2001), Dr. Blodgett describes a new species of Brachiopod (a clam type mollusc) that came from the Shellabarger effort, and which he has named the *Myriospirifer breasei*. As Blodgett states in the article, "For Phil F. Brease, U.S. National Park Service geologist at Denali National Park, Alaska, who ably assisted one of us (Blodgett) during late July 1996 in the collection of the species."

The genus *Myriospirifer* lived in shallow platform ocean environments in Late Devonian time (391-400 million years ago) around Gondwana and Baltica. *M. breasei* is thought to be of Siberian origin, and arrived in Alaska on a rifted section of that continent. In any case, *M. breasei* is the first newly discovered species, plant or animal, living or dead that occurs inside the park.

Two Parks Recognized as Globally Important Bird Areas

Using scientific information and the recommendations of experts, the American Bird Conservancy's Important Bird Area Program aims to identify and protect a network of key sites in the United States to further national and global bird conservation. Criteria for selection include the role of each area in the ongoing effort to conserve wild birds and their habitats. The American Bird Conservancy has recognized 100 areas in the United States as globally Important Bird Areas including seven areas in Alaska. These include Denali National Park and Preserve, Bering Land Bridge National Preserve, and five U.S. Fish and Wildlife National Refuges: Alaska Maritime, Arctic, Izembek, Yukon Delta, and Yukon Flats. These Alaska areas share the list with 93 other areas across the United States including Big Bend National Park (Texas) and Everglades National Park (Florida).

The Important Bird Area (IBA) concept has led to the recognition and protection of some 3,500 sites throughout the world. Since 1995, the IBA Program has concentrated on identifying and documenting the top sites throughout the United States — those of significance not just on a national but on a global level. Some of these sites are important in conjunction with other sites; they exist as part of a chain along a migratory pathway. Other sites are independent, and a few support species found nowhere else on earth.

The goal of the Important Bird Areas Program is not only recognizing sites, but also mobilizing the resources needed to protect them and the bird populations they support. Recognition is an important first step, since it raises the awareness of the public and of the managing agencies about a site's exceptional value. Moreover, with more than 71 million Americans interested in birds, the public is a powerful constituency for bird conservation.

For more information on the America Bird Conservancy's Important Bird Area Program, visit their web site **http://www.abcbirds.org/ iba/ aboutiba.html.**

Alaska Students Gather to Manage Alaska's Oceans for the Future

As much of the National Park Service focuses on partnerships and education, coastal parks across the nation continue to find creative ways to encourage future stewards of the world's oceans. Kenai Fjords National Park, based in Seward, Alaska, in partnership with state and federal agencies, Alaska schools, and private organizations, co-sponsored an event that blends partnerships, education, and marine protection in new, meaningful, and active ways. The first Alaska Student Ocean Conference was held April 9-10, 2002, at the Alaska SeaLife Center, a nonprofit research aquarium and National Park partner in Seward. The conference will be an annual event.

Nine teachers, each with a group of five middle and/or high school students, were selected to receive funding and support to attend. The groups came from urban centers like Fairbanks, Juneau, Anchorage, and Palmer, and also represented rural Alaska from the villages of Healy, Tok, and Yakutat. Together, students, teachers, and professionals began an exploration of coastal and ocean issues, with dynamic field trips including coastal hikes, boat trips, and computerized marine boating simulations. Meshing academic theory with on-the-ground realities, it was a time for questions, discoveries, and more questions.

As students began to synthesize a vision for the future of Alaska's coast and oceans, they were treated to a discussion with Dr. Sylvia Earle, a world-renowned figure in the exploration and preservation of our planet's marine resources. Dr. Earle currently leads the National Oceanic and Atmospheric Administration's (NOAA) Sustainable Seas Expeditions program, which involves extensive study of our national marine sanctuaries. Keeping her global perspective in mind, students were able to further refine a vision for the future of Alaska's marine resources and draft recommendations on how Alaska might achieve their goals. Throughout the process, students also explored careers in science and natural resource management. The final outcome? Students presented their recommendations to a panel of Alaska environmental policy-makers.

The Alaska Student Ocean Conference's primary sponsors included: the Coastal America Partnership, National Geographic Society, National Park Service, Alaska SeaLife Center, Alaska State Coastal Management Program, and NOAA-National Marine Fisheries Service and Sustainable Seas Expeditions. Other partners who provided staff and expertise included: U.S. Fish and Wildlife Service, U.S. Air Force, Alaska Vocational Technical Center, Army Corps of Engineers, Kenai Peninsula Borough, Qutekcak Shellfish Hatchery, Alaska Marine Conservation Council, Kenai Fjords Tours, Seward Charter Boat Association, The Ocean Conservancy, Alaska Oceans Network, Qutekcak Native Tribe, Alaska State Parks, and U.S. Coast Guard.

This list of partners may seem overwhelming. However, each one provided a vital perspective, helping the students to understand not only the complexity of ocean and coastal management across Alaska, but also the complexity of these issues faced by all in the future.

The Sustainable Seas Expedition (SSE), the Coastal America Partnership, and its Coastal Ecosystem Learning Centers have partnered to reach out to students and teachers from coastal communities around the U.S. to host Student Ocean Conferences. The National Geographic Society, NOAA, and the Richard and Rhonda Goldman Fund established the SSE in 1998. Coastal America is a partnership of federal agencies, including the Department of the Interior and the National Park Service, established in 1992 to protect, preserve and restore our coastal watersheds.

For more information please visit the Alaska Student Ocean Conference website **(www.gov.state.ak.us/dgc).** If you want to find out about co-sponsoring a Student Ocean Conference in your area, visit the Coastal America website describing Student Ocean Conferences **(www.coastalamerica.gov/ text/soc.html).** You can also contact Lisa Matlock, Education Coordinator for the Ocean Alaska Science & Learning Center partnership between Kenai Fjords National Park and the Alaska SeaLife Center, at (907) 224-2148 or lisa_matlock@nps.gov.

New Learning Centers

At Kenai Fjords National Park, design of a new learning center is under way. Annual visitation at Kenai Fjords in the past 10 years has increased from 60,000 to more than 290,000. The present visitor center in Seward is inadequate for both visitors and staff. A multi-agency facility incorporating the needs of the NPS, Forest Service, and other partners will be built on an 11-acre site near the Alaska SeaLife Center, a popular visitor destination and partner with the park.

Denali National Park and Preserve has joined with eight other Alaska national parks to create a world-class center for education and research. The center will provide facilities to support field science and research in Denali NP&P and other northern parks. The staff will develop programs, exhibits, and publications to showcase science and its role in preserving these parklands. Field seminars, lecture series, teacher training, Elderhostel programs and distance learning opportunities highlight some of the programs planned.

Air Time for Peregrine Falcon Chicks

Two one-week-old peregrine falcon chicks in Yukon-Charley Rivers National Preserve in Northeast Alaska were on the air, long before they were in the air.

Although there are 47 peregrine nesting sites in the preserve and nearby areas, the once-endangered falcons are only recently recovering from decimation due to chemicals such as DDT, which prevented successful breeding. As part of an active preservation and education program, each summer a few active peregrine aeries are selected as sites for small remote cameras that transmit a video signal to the National Park Service visitor center in Eagle. Last summer, visitors and residents watched the amazing growth of chicks from birth to first flight. This year, the aerie on Eagle Bluff, just downstream of the historic Yukon River town, will gain a worldwide audience.

National Park Service photograph

There are 47 peregrine nesting areas in Yukon-Charley Rivers National Preserve.

This past spring filming began for an electronic field trip that will air in early December. The National Park Service, with the U.S. Department of Education, the Satellite Educational Resources Commission and One Planet Education, are the prime sponsors of the peregrine program.

Two middle school students from Eagle, Amanda Westphall and Garf Hall, participated with the researchers and the production crew. Both students took an interest in the project last summer, and actively worked with the park on the project in the weeks leading up to the filming. The crew filmed the birds' habitat, watched adult birds flying and bringing food back to the nest and spent time discussing the recovery of the species with biologists.

"Journeys to Living Laboratories" is a six-part series of electronic field trips to locations where endangered species are being studied and protected. The project will compare habitat, recovery, survival and ecosystems of six endangered and threatened species worldwide. In addition to cable and broadcast television programs, the efforts will produce on-line classroom lessons and activities and a DVD for use in classrooms. Other segments will explore the wolves and bears of Yellowstone National Park, the piping plovers of Assateague Island National Seashore in Maryland and the wild dogs and black rhinos of Mkomazi Game Reserve in Tanzania.

Hubbard Glacier Closing Russell Fiord

Hubbard Glacier in Wrangell-St.Elias National Park and Preserve, near Yakutat, continued its advance and for a short time blocked the entrance to Russell Fiord from Disenchantment Bay. Earlier this summer, the Glacier closed off the channel, creating a 39-mile (63 km) long, ice-dammed lake. The dam eventually broke open later in the summer.

For a few tense weeks before the dam broke, water had continued to flow into the fiord from the glacier, causing the water level to rise a half foot per day. The Forest Service convened a multidisiplinary team of specialists to implement monitoring strategies and reactivate monitoring sites in the impacted area.

The last time Hubbard Glacier closed the entrance to Russell Fiord was in May 1986. News media from around the

National Park Service photograph

National Park Service photograph

The last time Hubbard Glacier closed the entrance to Russell Fiord was in May 1986.

world converged on Yakutat, and covered this significant glaciological event. Between May 29 and October 7, runoff from a 695 square miles (1,800 square km) area raised the water level in Russell Lake to 83 feet (25 m) above sea level. The rising water inundated alluvial fans, outwash plains in front of several tributary glaciers and part of the densely forested fringes of the former Russell Fiord. Because of ice calving, the dam narrowed and began to break about midnight on October 7, 1986. Within 24 hours the water level had reached the former high-tide level of Russell Fiord.

In the future, should a stable ice dam form and the lake level rise to an elevation of 131 feet (40 m), Russell Fiord could drain southward into the Situk River drainage, altering a world-class fishery and inundating national forest and private land. The Situk River is a world-renowned steelhead and salmon stream and the most productive stream for its size in Alaska. It is a primary subsistence and commercial stream and has a popular sport fishery with many lodges to support visitation.

Because of the cultural, environmental and economic consequences of Russell Lake draining into the Situk River, citizens and officials of the community of Yakutat, as well as representatives of several state and federal agencies, are showing interest and concern about the behavior of Hubbard Glacier. The Forest Service is taking the lead in the dissemination of information about this significant event; the U.S. Geological Survey (USGS) is providing research and technical expertise; and an interagency team of Forest Service, National Park Service, and USGS representatives is providing ongoing monitoring. Current information and photographs of Hubbard Glacier can be found on the Tongass National Forest's website **www.fs.fed.us/r10/tongass** and the USGS website **www.usgs.gov.**

The results of the data collection benefit the Pacific walrus population and subsistence hunters in both countries, who strive to understand this important resource while co-managing the shared walrus population.

4th Chukotka Walrus Harvest Monitoring Workshop

For the fourth year, U.S. residents met with Russian residents at a workshop conducted in Nome from July 8-12, to discuss the walrus harvest on both sides of the Bering Sea. The National Park Service is funding Kawerak Inc., a regional non-profit corporation for a "Chukotka Walrus Harvest Monitoring Project." The project

National Park Service photograph

The data collected on the harvest is important in documenting and understanding the trends of the Pacific walrus population.

National Park Service photographs

includes an annual workshop that the Eskimo Walrus Commission (EWC) has hosted for three consecutive years in Nome.

The purpose of the workshop and project is to document the subsistence harvest of walrus in eight hunting villages in Chukotka, Russia. Walrus hunters in the villages of Enurimo, Inchoun, Uelen, Lorina, Yanrakynnot, Novo-Chaplino, Sireniki and Enmelen provide data and biological samples to researchers. The efforts in Russia correspond to similar efforts in the U.S. in which walrus hunters in the villages of Gambell, Savoonga, Diomede, Wales and Shishmaref provide information and biological samples to walrus harvest monitors.

The data collected on the harvest is important in documenting and understanding the trends of the Pacific walrus population. The results of the data collection benefit the Pacific walrus population and subsistence hunters in both countries, who strive to understand this important resource while co-managing the shared walrus population.

Alaska's National Parks Contain Many Unsolved Mysteries

The mission of the National Park Service is to protect the diverse species of plants and animals found in national parks, including species such as lanternfish and shrews. Given the number of extinctions in the last century, it is easy to see the importance of species diversity and the protection of rare species.

Why has a rare species of shrew appeared at Yukon-Charley Rivers National Preserve and Wrangell-St. Elias National Park and Preserve? Why are the normally nocturnal lanternfish at Glacier Bay National Park making daytime appearances?

Thanks to a new natural resources inventory program in Alaska's national parks, we may soon have answers to some of these puzzling questions. As scientists and citizens around the country debate issues of resource management, global warming and appropriate recreational use in national parks, this inventory program focuses on collecting baseline data about resources in national parks. The information can then be useful in guiding and making scientifically sound decisions.

For instance, at Glacier Bay National Park and Preserve, marine biologists have observed rarely documented behaviors in lanternfish. Lanternfish are named for their one-time use as fuel in lanterns. They are an important part of the food chain, since they are a rich food source for many marine mammals, birds and larger fish. Until recently, scientists thought these fish were nocturnal, spending the daytime in deep waters and coming to the surface at night to feed. Recent fieldwork found lanternfish at the surface in great numbers during the day, but only in active glacial fjords. It is suspected that the water melting from glaciers is cloudy enough to hide the lanternfish from predators during the day (Mike Litzow, U.S. Geological Survey, Alaska Science Center), changing our knowledge about lanternfish behaviour.

In the parks of Northwest Alaska, Cape Krusenstern National Monument, Bering Land Bridge National Preserve and Noatak National Preserve, 16 plants considered rare or critically imperiled have been found that were previously undocumented in these parks. One of these, *Potentilla fragiformis*, a handsome flower with five petals, was known only in Russia and has never before been documented in North America.

At Yukon-Charley Rivers and Wrangell-St. Elias, both in eastern Alaska, researchers from the University of Alaska found 10 shrews from the species that is aptly named "tiny shrew." Before the inventory at these parks began, specimens had only been found in Central and

Southcentral Alaska. Through the new program, we are greatly expanding our under-standing of this species' range and habitat requirements.

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Congress has funded the Inventory and Monitoring Program as a part of a Natural Resource Challenge to improve science and stewardship in national parks. The National Park Service is collaborating with scientists and researchers from universities and other agencies. The inventory program will serve as a baseline for long-term monitoring of plants, animals and environmental conditions like air and water quality. It will help park managers and researchers better understand arctic and sub-arctic ecosystems, information essential to unlocking the mysteries of global warming, ecosystem dynamics and natural variation.

Weather at the Top of North America

Climbers from the Japanese Alpine Club installed an improved weather station at 19,200 feet on Mt. McKinley last June. It sends real-time weather data to scientists at University of Alaska Fairbanks, and daily updates are posted on the web (www.denali.gi.alaska.edu). The new wind gauge replaces one that was routinely destroyed because it could not withstand gusts exceeding 200 mph. The resulting data from the new weather station will be of great scientific interest and could also be an additional forecasting tool for climbers. It was originally placed for that purpose after Japanese adventurer Naomi Uemura's tragic disappearance in 1984, just after he became the first person to reach the summit alone in winter.

National Park Service photograph

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... weather station at 19,200 feet on Mt. McKinley...sends real-time weather data to scientists at University of Alaska Fairbanks, and daily updates are posted on the web www.denali.gi.alaska.edu.

Amphibian Flashcards

The Inventory & Monitoring Program (I&M) just received 250 copies of Amphibians of Alaska. This seven-page set of waterproof flashcards was developed and designed to aid in the identification of amphibians found in our National Parks. This educational product shows the five most commonly occurring species of frogs, toads, salamanders and newts in Alaska. The Inventory & Monitoring Program will be sending copies to parks for distribution to field crews, volunteer groups, schools and visiting scientists.

These flashcards are a part of a region-wide Opportunistic Survey of Amphibians. A field form and Geographic Information System (GIS) database product have also been created to keep track of viable observations by trained staff and volunteers. This is an exciting new learning resource that scientists, interpreters, seasonal field crews, local community members and others can use.

Effects of Low-Level Military Flights on Calving Caribou

At an estimated 40,000 strong, the Fortymile Caribou Herd is one of the most prominent caribou herds of Interior Alaska. Although 40,000 animals is a substantial number of caribou, this estimate is well below the historical high of more than 500,000 caribou of the 1920s. In addition to fewer animals, the Fortymile Caribou Herd currently occupies only a fraction of its historical range. In recent years, the herd has been in the news due to the Alaska Department of Fish and Game's efforts to increase herd production and growth in an attempt return the herd to its historical numbers and distribution. The National Park Service has an interest in this herd not only for its intrinsic value but also as an important component of the Yukon-Charley Rivers National Preserve ecology. The U.S. Air Force. too, has a great interest in the herd as the entire herd distribution is overlaid by airspace designated as a Military Operations Area. As such, the U.S. Air Force conducts substantial aircraft training over land areas that are critical to the well-being of the herd.

Previous studies on other herds of caribou have shown relatively mild behavioral responses of caribou to military jet flights, but no studies have been conducted during the sensitive calving period. In May 2002, a new research project was initiated through a cooperative effort of the Alaska Department of Fish and Game, the National Park Service, and the U.S. Air Force. A team of biologists and forward ground controllers took to the field in areas just east and south of the Preserve. Behavior of cow caribou and cows with calves was observed before, during and immediately following low-level military jet overflights. Movements of radio-collared caribou and survival of newborn calves in relation to overflight history were also recorded. Field efforts for this study coincided with the calving period and ran from mid-May through early June. Researchers are in the process of sorting and organizing the large amount of data collected during this short field season.

National Park Service photograph

Hollow caribou hair traps substantial air for excellent insulation against the cold.

National Park Service photograph

Adult bulls can accumulate fat deposits—mostly on their back and rump—that weigh 60 pounds or more in early fall.

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